

AMENDMENTS TO THE CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remain(s) under examination in the application is presented below. The claims are presented in ascending order and each includes one status identifier. Those claims not cancelled or withdrawn but amended by the current amendment utilize the following notations for amendment: 1. deleted matter is shown by strikethrough for six or more characters and double brackets for five or fewer characters; and 2. added matter is shown by underlining.

1-11. (Canceled).

12. (Currently Amended) A laser apparatus for material treatment, comprising:

a source of laser radiation providing pulsed laser radiation comprising a train of laser pulses; and

a deflecting device, which directs said laser radiation into the material at different, selectable locations to generate optical breakthroughs within the material; and

a pulse picking device that modifies selected laser pulses of the train of laser pulses, with regard to at least one optical parameter of said selected laser pulses, such that the selected laser pulses cannot generate optical breakthroughs; and

a control device operably coupled to the source of laser radiation, the deflecting device and the pulse picking device, and the control device being operable to monitor and control the source of laser radiation, the deflecting device and the pulse picking device;

the control device that controls being further operable to control the operation of the pulse picking device such that the pulse picking device influences said selected laser pulses such that only a remaining subset of not selected laser pulses cause optical breakthroughs within the material and such that a number of selected pulses varies in relation to a deflection speed of the deflecting device.

13. (Previously Presented) The laser apparatus as claimed in claim 12, wherein the laser pulses of the train of laser pulses are substantially equidistant in time and wherein the control device is programmed to operate the pulse picking device such that the pulse picking device selects non-consecutive laser pulses of the train of laser pulses, the selected laser pulses being substantially equidistant in time according to a selection frequency.

14. (Previously Presented) The laser apparatus as claimed in claim 12, wherein the control device is programmed to operate the pulse picking device such that the pulse picking device modifies the selected laser pulses at least with regard to one parameter selected from a group consisting of: phase, amplitude, polarization, propagation direction, and beam profile.

15. (Original) The laser apparatus as claimed in claim 12, wherein the pulse picking device comprises at least one structure selected from a group consisting of an acousto-optic modulator, a Pockels' cell, a fiber-optics switching element and a chopper wheel.

16. (Previously Presented) The laser apparatus as claimed in claim 12, wherein the control device synchronously controls the pulse picking device and the deflecting device.

17. (Original) The laser apparatus as claimed in Claim 13, wherein the control device controls the pulse picking device and the deflecting device to generate the optical breakthroughs along a predetermined path.

18. (Previously Presented) The laser apparatus as claimed in Claim 17, wherein the control device monitors an actual deflection speed of the deflecting device and if the actual deflection speed of the deflecting device approaches a preselected maximum deflection speed, the control device increases the selection frequency of pulses such that more pulses are selected and also decreases the actual deflection speed.

19. (Currently Amended) A method of material treatment by laser radiation, comprising generating pulsed laser radiation comprising a train of laser pulses via a laser source controlled by a control unit;

variably deflecting the pulsed laser radiation into the material to generate optical breakthroughs within the material with a deflecting device that is controlled by the control unit;  
selecting a subset of selected laser pulses with a pulse picking device controlled by the control unit; and

modifying the selected laser pulses of the train of laser pulses, with regard to an optical parameter of said selected laser pulses, such that the selected laser pulses no longer generate optical breakthroughs, wherein only a remaining subset of not selected laser pulses cause optical breakthroughs within the material and such that a number of selected pulses varies in relation to a deflection speed of the deflecting device.

20. (Previously Presented) The method as claimed in Claim 19, wherein the laser pulses of the train of laser pulses are substantially equidistant in time and the method further comprising:

selecting non-consecutive laser pulses of the train of laser pulses according to a selection frequency, the selected laser pulses being substantially equidistant in time.

21. (Previously Presented) The method as claimed in Claim 19, wherein the selected laser pulses are modified at least with regard to one parameter selected from a group consisting of: phase, amplitude, polarization, propagation direction, and beam profile.

22. (Original) The method as claimed in Claim 20, further comprising deflecting the laser radiation and the change in the selected laser pulses in a synchronized manner.

23. (Previously Presented) The method as claimed in Claim 19, further comprising controlling the deflection of the laser radiation and the selection of the laser pulses to cause optical breakthroughs to form along a predetermined path within the material.

24. (Previously Presented) The method as claimed in Claim 23, further comprising, if an actual deflection speed of said deflection comes close to a maximum deflection speed, increasing the selection frequency of pulses such that more pulses are selected, and simultaneously decreasing the actual deflection speed.

25. (Previously Presented) The method as claimed in Claim 20, further comprising, if an actual deflection speed of said deflection comes close to a maximum deflection speed, increasing the selection frequency of pulses such that more pulses are selected, and simultaneously decreasing the actual deflection speed.